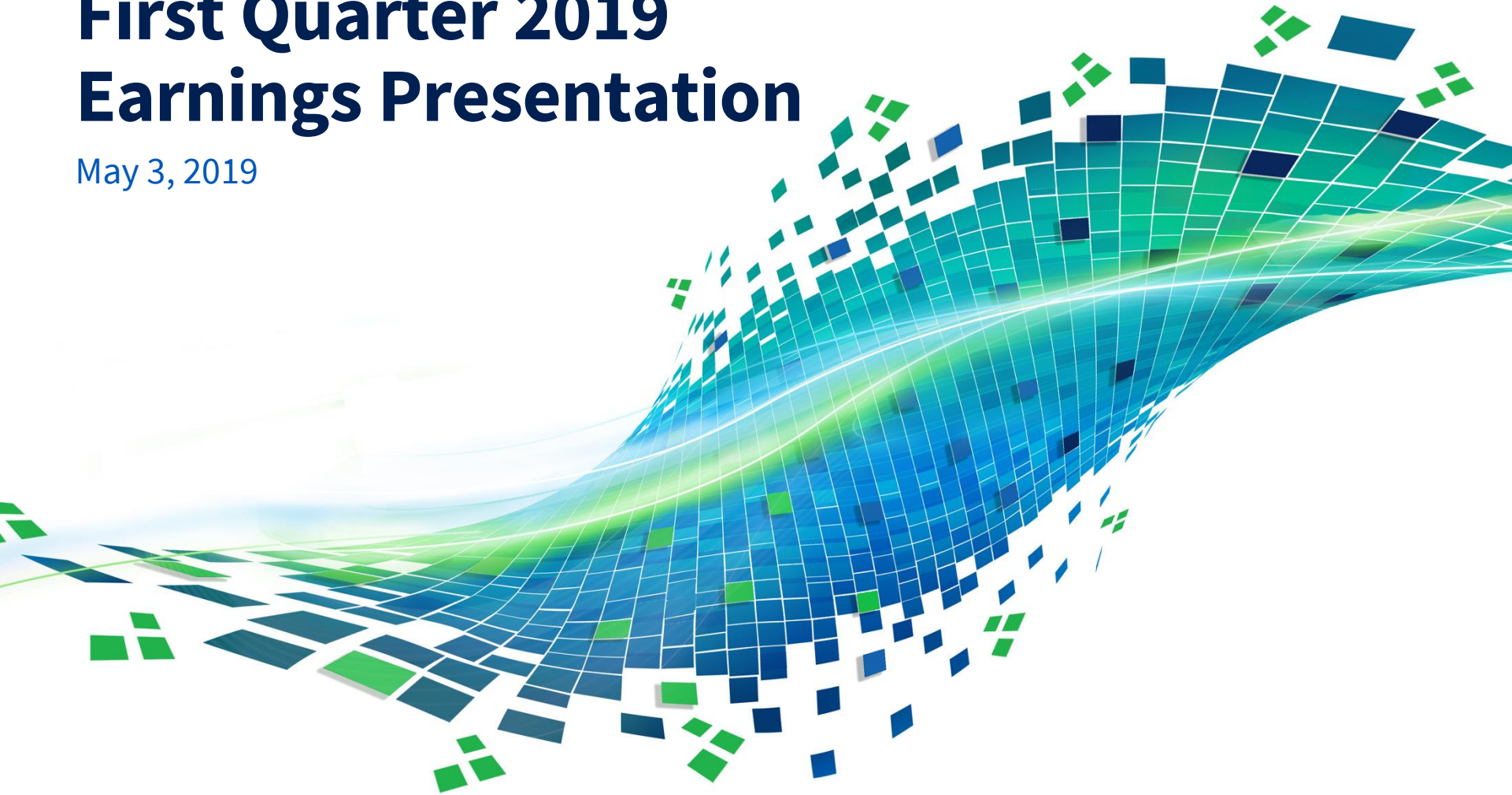


First Quarter 2019 Earnings Presentation

May 3, 2019



Strategic Review

Edward Tilly

Chairman, President and Chief Executive Officer

Financial Review

Brian Schell

Executive Vice President, CFO and Treasurer

Questions and Answers

Edward Tilly

Brian Schell

Chris Isaacson

Executive Vice President and Chief Operating Officer

John Deters

Chief Strategy Officer and Head of Multi-Asset Solutions

Cautionary Statements Regarding Forward-Looking Information

This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 that involve a number of risks and uncertainties. You can identify these statements by forward-looking words such as “may,” “might,” “should,” “expect,” “plan,” “anticipate,” “believe,” “estimate,” “predict,” “potential” or “continue,” and the negative of these terms and other comparable terminology. All statements that reflect our expectations, assumptions or projections about the future other than statements of historical fact are forward-looking statements. These forward-looking statements, which are subject to known and unknown risks, uncertainties and assumptions about us, may include projections of our future financial performance based on our growth strategies and anticipated trends in our business. These statements are only predictions based on our current expectations and projections about future events. There are important factors that could cause our actual results, level of activity, performance or achievements to differ materially from those expressed or implied by the forward-looking statements.

We operate in a very competitive and rapidly changing environment. New risks and uncertainties emerge from time to time, and it is not possible to predict all risks and uncertainties, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements.

Some factors that could cause actual results to differ include: the loss of our right to exclusively list and trade certain index options and futures products; economic, political and market conditions; compliance with legal and regulatory obligations; price competition and consolidation in our industry; decreases in trading volumes, market data fees or a shift in the mix of products traded on our exchanges; legislative or regulatory changes; potential difficulties in our migration of trading platforms and our ability to retain employees as a result of the acquisition of Bats; our ability to protect our systems and communication networks from security risks, cybersecurity risks, insider threats and unauthorized disclosure of confidential information; increasing competition by foreign and domestic entities; our dependence on and exposure to risk from third parties; fluctuations to currency exchange rates; our index providers’ ability to maintain the quality and integrity of their indexes and to perform under our agreements; our ability to operate our business without violating the intellectual property rights of others and the costs associated with protecting our intellectual property rights; our ability to attract and retain skilled management and other personnel, including those experienced with post-acquisition integration; our ability to accommodate trading volume and transaction traffic, including significant increases, without failure or degradation of performance of our systems; misconduct by those who use our markets or our products; challenges to our use of open source software code; our ability to meet our compliance obligations, including managing potential conflicts between our regulatory responsibilities and our for-profit status; damage to our reputation; the ability of our compliance and risk management methods to effectively monitor and manage our risks; our ability to manage our growth and strategic acquisitions or alliances effectively; restrictions imposed by our debt obligations; our ability to maintain an investment grade credit rating; impairment of our goodwill, investments or intangible assets; and the accuracy of our estimates and expectations. More detailed information about factors that may affect our actual results to differ may be found in our filings with the SEC, including in our Annual Report on Form 10-K for the year ended December 31, 2018 and other filings made from time to time with the SEC.

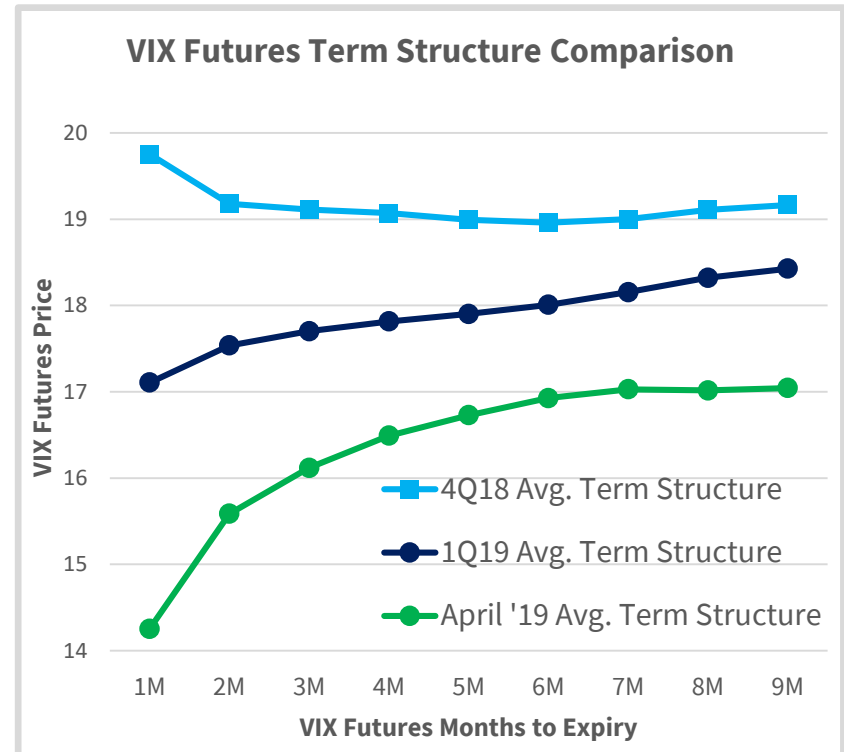
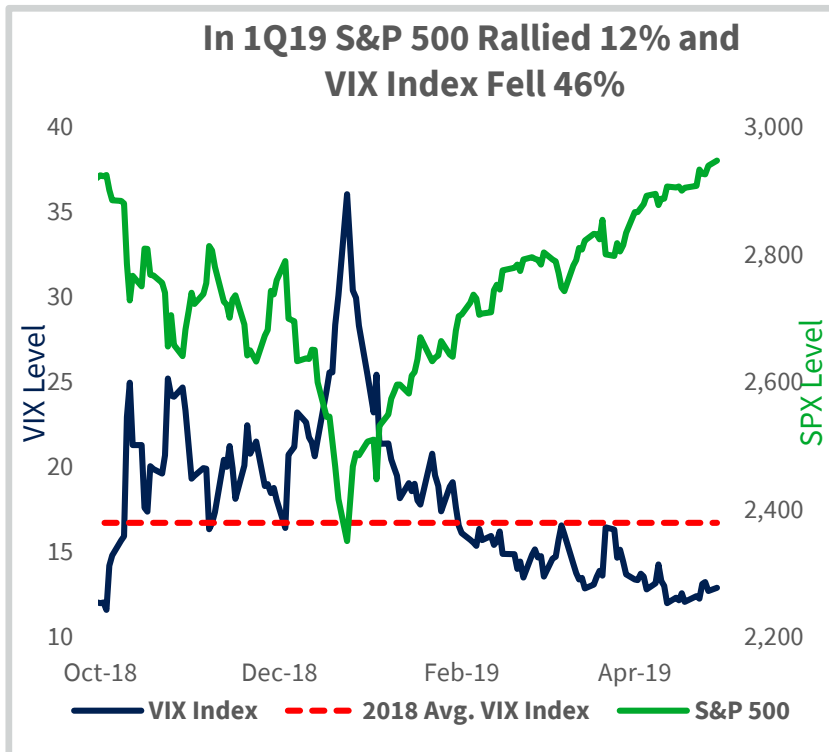
We do not undertake, and we expressly disclaim, any duty to update any forward-looking statement whether as a result of new information, future events or otherwise, except as required by law. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof.



Strategic Review
Edward Tilly
Chairman, President and CEO

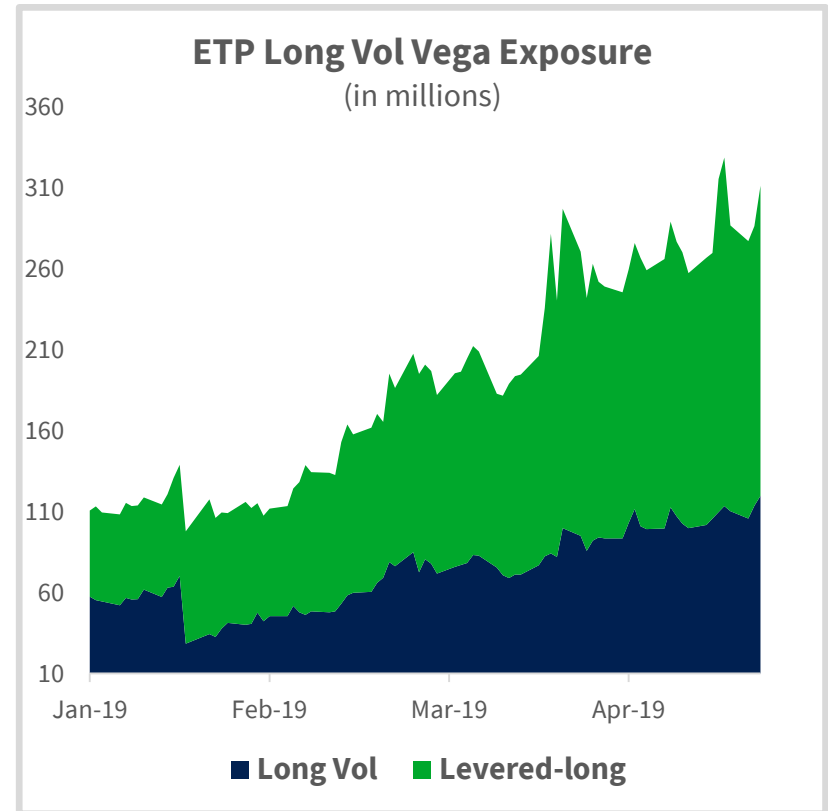
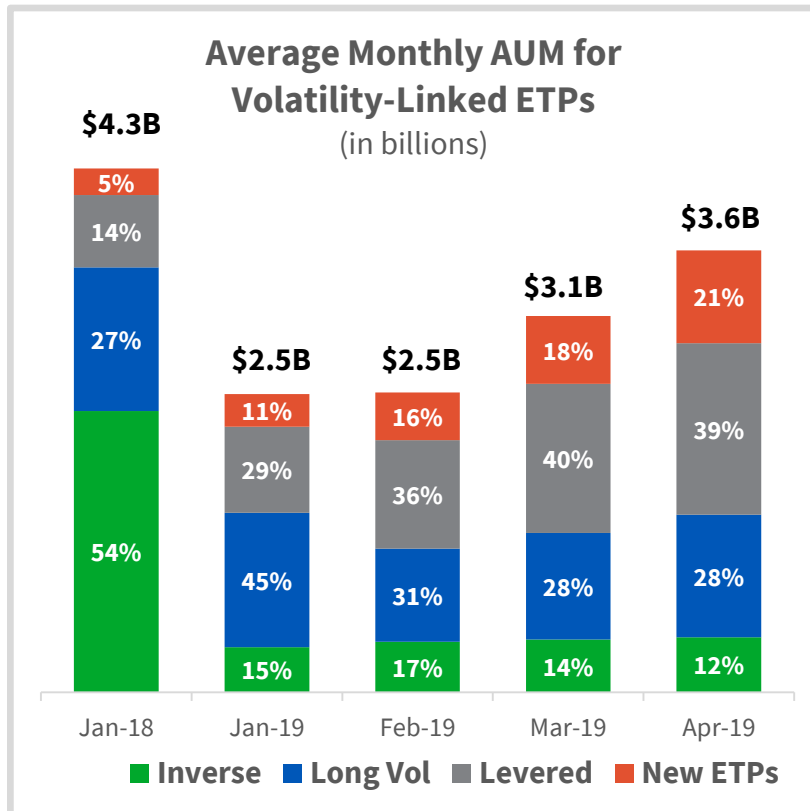
First Quarter Results Reflect Challenging Market Conditions and Difficult Comparisons

- ❖ 1Q19 was a reversal from the sharp market downturn in 4Q18
- ❖ As markets hit all-time highs, implied volatility levels fell across all asset classes and VIX term structure steepened



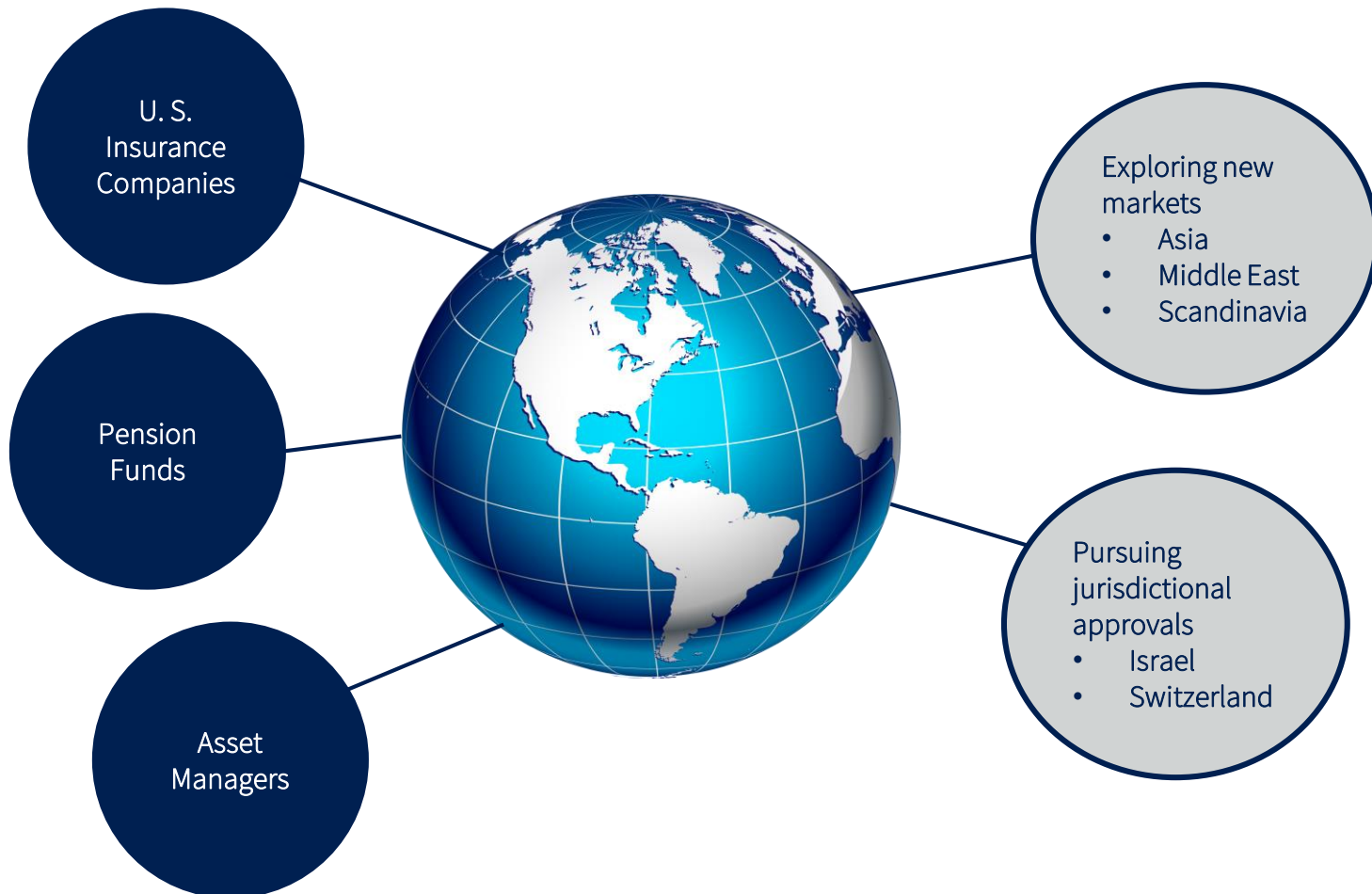
Changes in VIX Futures Term Structure and Growth in Volatility ETPs Present More Trading Opportunities

- ❖ AUM in volatility-linked ETPs has been steadily building since January
- ❖ In last 3 months, ETP complex has gained about 130MM of long vega exposure



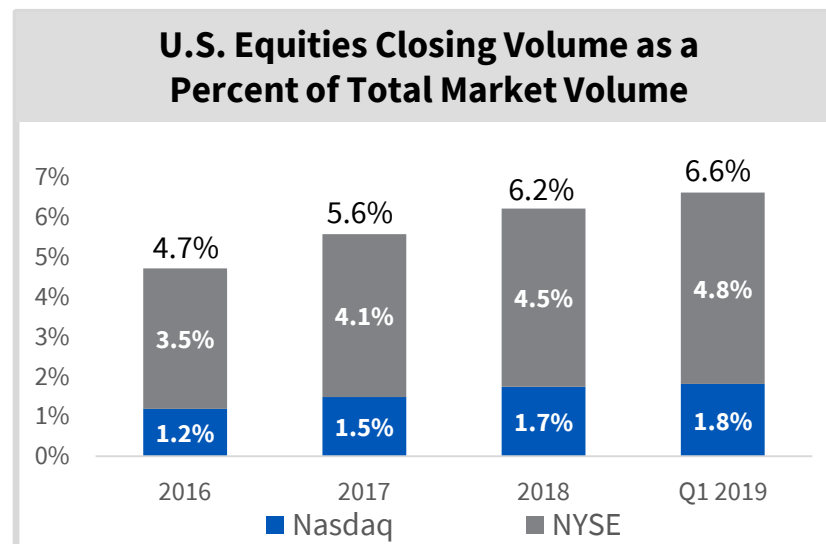
Focused on Growing Proprietary Product Suite

- ❖ Aligning sales and coverage teams across regions and products
- ❖ U.S. remains largest growth opportunity



Cboe EDGX focused on being the destination of choice for retail trading

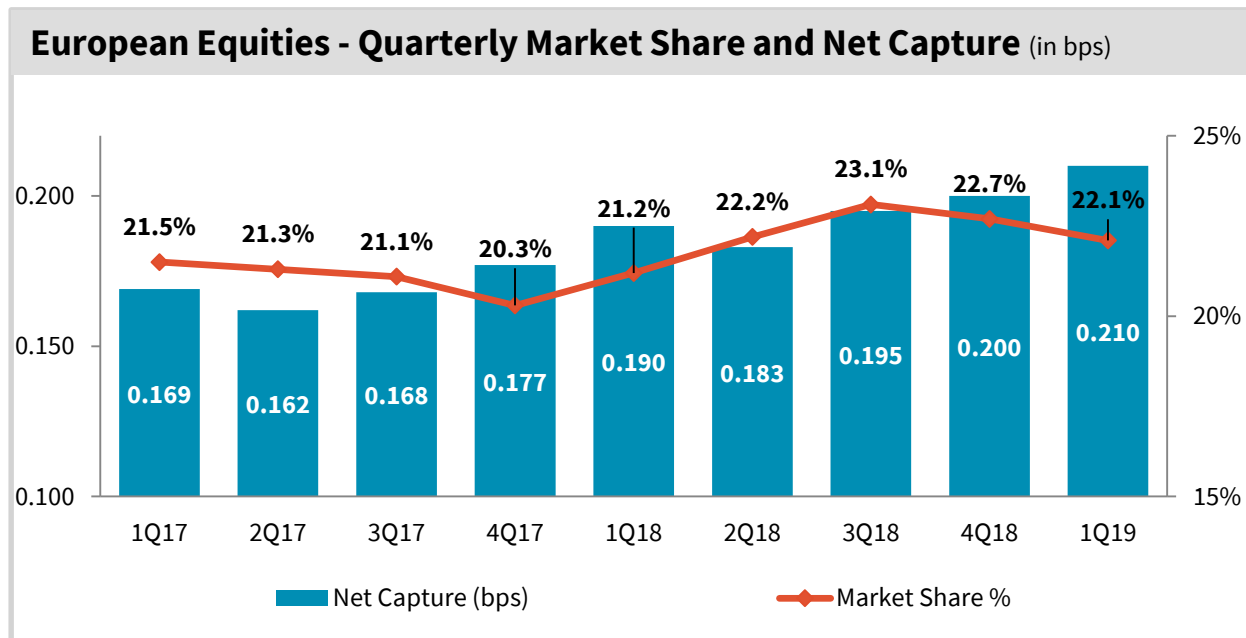
- ❖ Adjusted pricing on Cboe EDGX, effective May 1
 - Changes aimed at attracting more order flow to bolster market share
 - Plan to introduce execution priority to retail limit orders, subject to regulatory approval
- ❖ Continue to advocate for our Cboe Market on Close proposal



Source: Cboe

European Equities – Preparing to Operate in a Post-Brexit Environment

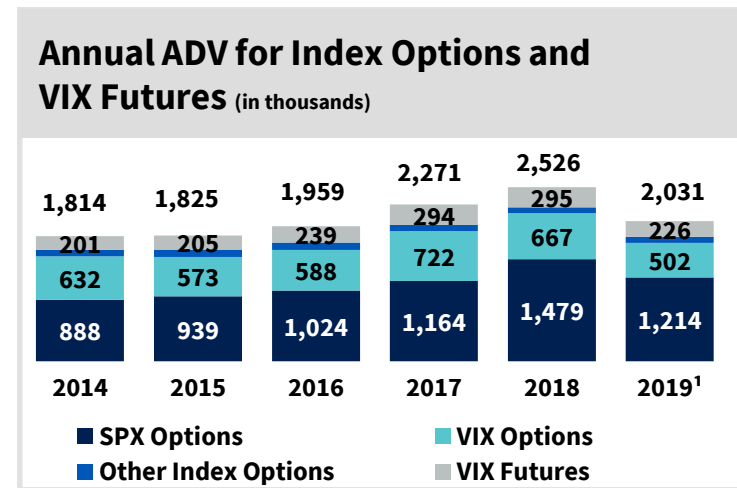
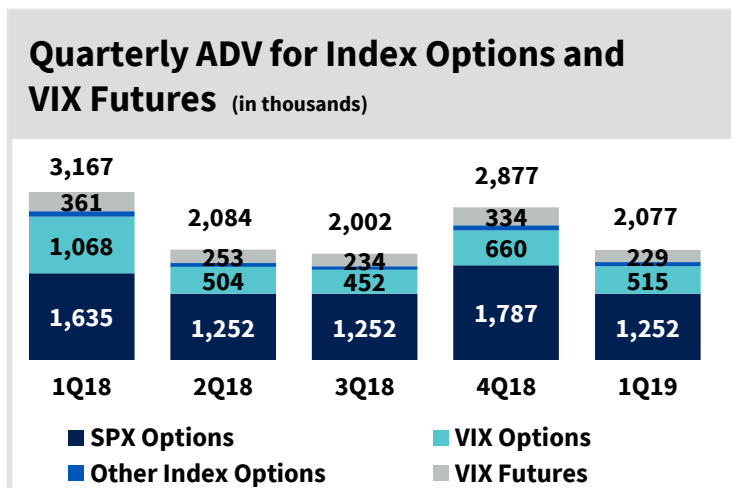
- ❖ Cboe Europe retained its #1 position in European equities in 1Q19 with market share of 22.1%, up from 21.2% in 1Q18
- ❖ In March, received authorization from the Dutch Ministry of Finance to operate a new venue in the Netherlands
- ❖ With Brexit deadline extended to the end of October 2019, plan to launch new venue later this year



Focused on Growing Highest-Margin Proprietary Index Suite

Continue to execute on strategic growth initiatives

- Well positioned to weather difficult trading conditions and to benefit when market conditions change
- Plan to further penetrate existing markets with an emphasis on education, targeting key market segments and geographies



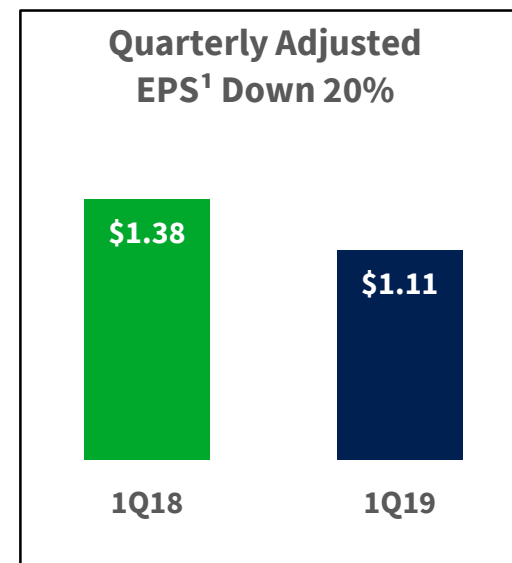
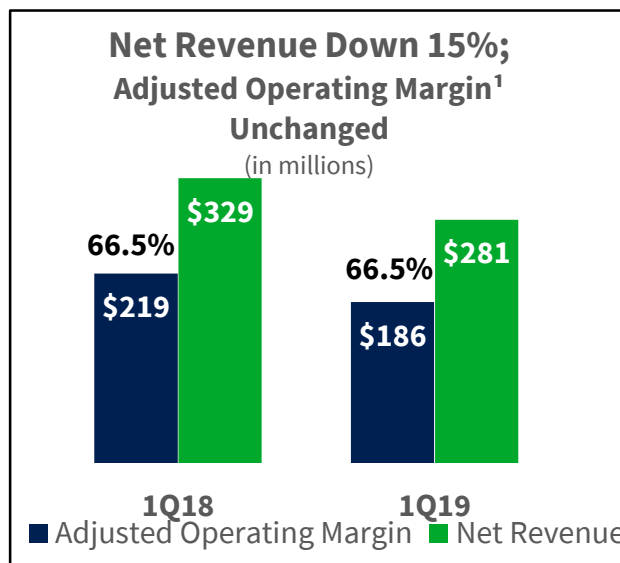
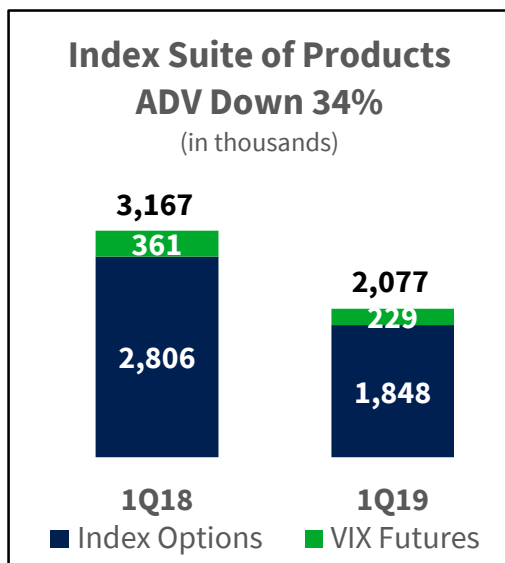
¹Through April 30, 2019



Financial Overview and Guidance
Brian Schell
EVP, CFO and Treasurer

Business Highlights – Key Performance Drivers

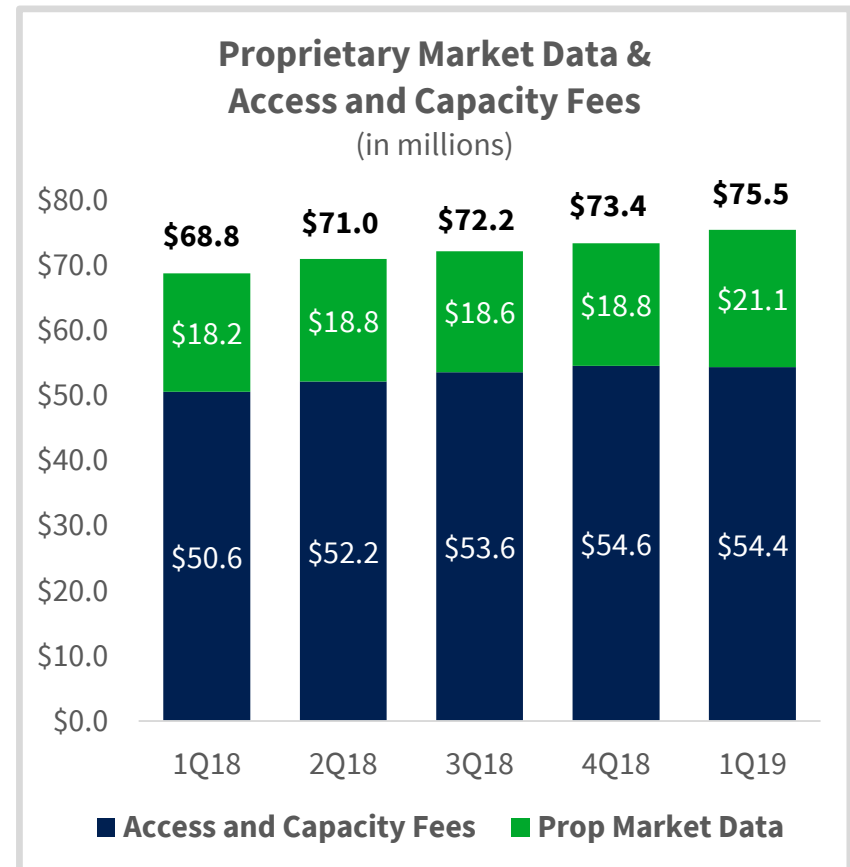
- ❖ Difficult comparisons against record first quarter in 2018
- ❖ Lower trading volumes across each business segment and industrywide
- ❖ Net transaction fees down 24%; non-transaction net revenue up 2%
- ❖ Expense discipline resulted in solid margin performance
- ❖ Reversal of OCC dividend revenue resulted in \$0.06 reduction in 1Q19 EPS



¹See appendix for “Non-GAAP Information.”

Recurring proprietary non-transaction net revenue up 10% in 1Q19 vs 1Q18

- ❖ Expect growth in proprietary market data & access and capacity fees combined to be mid- to high-single digit in 2019
- ❖ 70% of proprietary market data revenue growth in 1Q19 driven by additional subscriptions
- ❖ Bats technology migration expected to provide opportunities longer term



Options 1Q19 Net Revenue Down 17%

- ❖ 1Q19 revenue decrease driven by decline in ADV
- ❖ RPC variance reflects a shift in volume mix, with multi-listed options accounting for a higher percentage of volume in 1Q19 versus 1Q18
- ❖ Non-transaction revenue up 12% due to higher market data and regulatory fees

Options Statistics (\$ in millions, except RPC)	1Q19	1Q18	Change
Net Revenue	\$138.5	\$167.1	-17%
Key Operating Statistics:			
Total market share	36.8%	40.6%	-3.8 pts
Index options	99.3%	99.2%	0.1 pts
Multi-listed options	30.1%	32.1%	-2.0 pts
Total ADV (in thousands)	7,063	9,092	-22%
Index options	1,848	2,806	-34%
Multi-listed options	5,215	6,286	-17%
Total RPC	\$0.243	\$0.261	-7%
Index options	\$0.733	\$0.710	3%
Multi-listed options	\$0.069	\$0.061	13%

Futures 1Q19 Net Revenue Down 30%

- ❖ Revenue decrease driven by lower ADV
- ❖ RPC increase primarily reflects lower volume-based rebates
- ❖ Non-transaction fees increased 16% due to increases in market data fees and regulatory fines¹

Futures Statistics	1Q19	1Q18	Change
Net Revenue (in millions)	\$29.5	\$42.3	-30%
Key Operating Statistics:			
Total ADV (in thousands)	231	368	-37%
Total RPC	\$1.739	\$1.727	1%

¹Includes regulatory fines of \$0.5MM in 1Q19 vs none in 1Q18; up 6% excluding regulatory fees.

U.S. Equities 1Q19 Net Revenue Down 5%

- ❖ Revenue decline reflects lower volumes and market share offset somewhat by higher net capture, proprietary market data and access and capacity fees
- ❖ Decrease in SIP market data revenue due to lower market share and audit recoveries versus 1Q18

U.S. Equities Statistics	1Q19	1Q18	Change
Net Revenue (in millions)	\$75.8	\$79.7	-5%
Market data - SIP	23.7	29.6	-20%
Market data - Proprietary	9.1	8.9	2%
Access and capacity fees	19.0	18.1	5%
Key Operating Statistics:			
Total market share	16.0%	19.4%	-3.4 pts
Market ADV (shares in billions)	7.5	7.6	-1%
ADV (matched shares in billions)	1.2	1.5	-20%
Net capture (per 100 touched shares)	\$0.029	\$0.023	26%

European Equities 1Q19 Net Revenue Down 7%



- ❖ Net revenue decrease primarily reflects unfavorable foreign-currency translation
- ❖ On local currency basis, net transaction fees down 8% and non-transaction revenue up 11%
- ❖ Decline in net transaction fees driven by lower overall industry volume, offset somewhat by higher market share and net capture

European Equities Statistics	1Q19	1Q18	Change
Net Revenue (in millions)	\$22.8	\$24.6	-7%
Net Revenue (in millions)	£17.5	£17.7	-1%
Key Operating Statistics:			
Total market share	22.1%	21.2%	0.9 pts
Market ADV (in billions)	€41.7	€50.8	-18%
Net capture (per matched notional value, in basis points)	0.210	0.190	11%

Global FX 1Q19 Net Revenue Down 5%

- ❖ Revenue decline reflects lower market volume offset somewhat by higher net capture and market share
- ❖ Higher net capture due to the impact of fee changes implemented in 2018
- ❖ First quarter marked a new record high for market share

Global FX Statistics	1Q19	1Q18	Change
FX Net Revenue (in millions)	\$13.9	\$14.6	-5%
Key Operating Statistics:			
Market share ¹	15.8%	15.3%	0.5 pts
Average Daily Notional Value (\$ in billions)	\$36.5	\$41.6	-12%
Net capture (per one million dollars traded)	\$2.61	\$2.45	7%

¹Market share represents Cboe FX volume divided by the total volume of publicly reporting spot FX venues (Cboe FX, EBS, Refinitiv, and FastMatch).

Adjusted Operating Expenses Down 14%

1Q19 vs 1Q18:

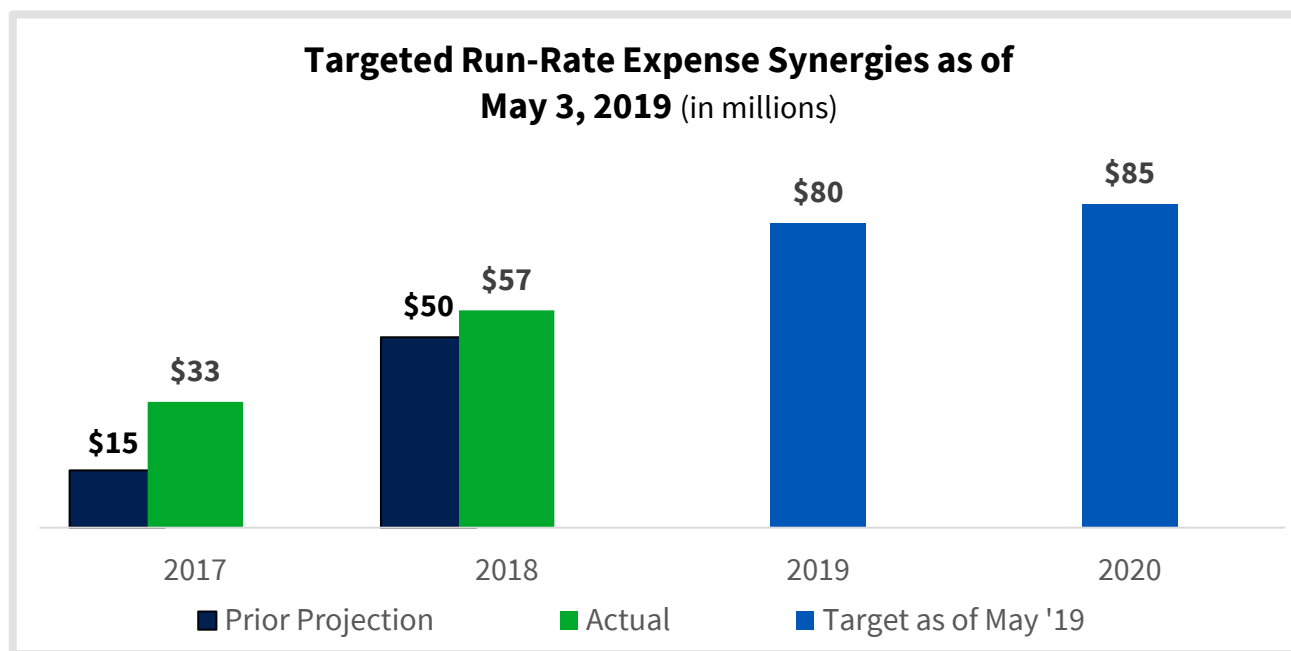
- ❖ Compensation and benefits down due to decrease in incentive-based compensation and equity compensation
- ❖ Lowering full-year 2019 adjusted operating expense guidance to a range of \$415 to \$423 million, a decrease of \$5 million

Adjusted Operating Expenses¹ (in millions)	1Q19	1Q18	% Chg
Compensation and benefits	\$48.1	\$58.9	-18%
Depreciation and amortization ¹	9.6	12.1	-21%
Technology support services	11.9	12.1	-2%
Professional fees and outside services	16.2	18.0	-10%
Travel and promotional	2.6	3.7	-30%
Facilities costs	2.1	2.4	-13%
Other expenses	3.6	2.7	33%
Total¹	\$94.1	\$109.9	-14%

¹Adjusted to reflect the impact of certain items. See Appendix for “Non-GAAP Information.”

Maintaining Expense Synergy Targets

- ❖ Maintaining 2019 run-rate expense synergy target of \$80 million and 2020 target of \$85 million



2019 Full-Year Guidance



2019 Full-Year Guidance (\$ in millions)	Guidance as of February 8, 2019	Guidance as of May 3, 2019
Adjusted operating expenses¹	\$420 to \$428 million	\$415 to \$423 million
Depreciation and amortization (excluding amortization of acquired intangible assets)	\$35 to \$40 million	\$35 to \$40 million
Effective tax rate on adjusted earnings	27% to 29%	27% to 29% ²
Capital expenditures	\$50 to \$55 million	\$50 to \$55 million

¹Adjusted operating expenses for 2019 exclude acquisition-related expenses and amortization of acquired intangible assets, which are expected to be \$138 million for 2019. Adjustments included in the non-GAAP reconciliation.

²Expect effective tax rate on adjusted earnings in the second through fourth quarters to be at higher end of guidance range.

Focused on Efficient Allocation of Capital to Create Long-Term Shareholder Value



Preserving balance sheet flexibility is a priority

- ❖ Invest in the growth of our business
- ❖ Return capital through dividends and share repurchases – about \$70MM in 1Q19

Debt Outstanding (\$ in millions)	Mar. 31, 2019	Dec. 31, 2018	Sept. 30, 2018	June 30, 2018	Mar. 31, 2018
3.650% Senior Notes (10Y; Due 2027)	\$ 650	\$ 650	\$ 650	\$ 650	\$ 650
1.950% Senior Notes (2Y; Due 2019)	300	300	300	300	300
Term Loan Facility	275	275	275	275	275
Total Debt (Gross)	\$ 1,225	\$ 1,225	\$ 1,225	\$ 1,225	\$ 1,225
Debt to EBITDA TTM¹	1.5x	1.5x	1.6x	1.6x	1.6x
Adjusted Cash & Financial Investments¹	\$348	\$258	\$138	\$116	\$166
Dividends Paid	\$34.8	\$34.7	\$34.7	\$30.6	\$30.6
Share Repurchases	\$35.0	--	\$49.1	\$48.3	\$43.6

¹See Appendix for “Non-GAAP Information.”

Delivering on Sources of Operating Leverage and Key Strategic Initiatives While Defining Markets Globally



Growth of Core Proprietary Products

- Focused on growing proprietary products

Strengthen Recurring Revenue Stream

- Growth in recurring revenue

Scale of Business Model

- Disciplined expense management

Synergies Realization

- Complete integration plan and deliver on our expense synergies

Capital Allocation

- Returned capital through dividends and buybacks
- Focused on maintaining balance sheet flexibility
- Leverage ratio of 1.5x

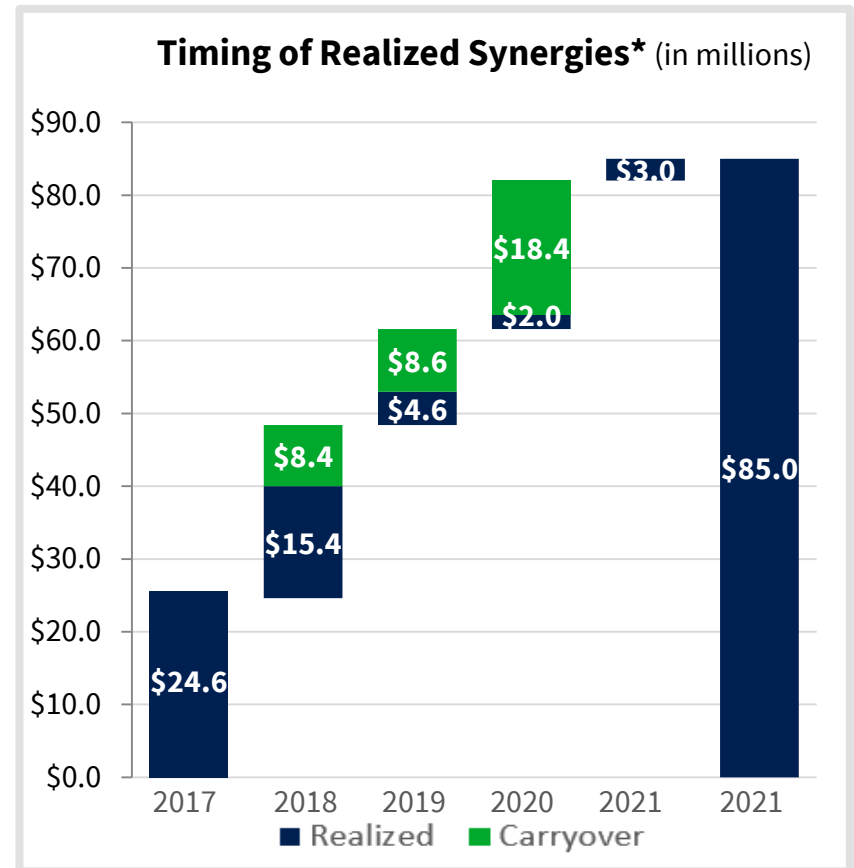
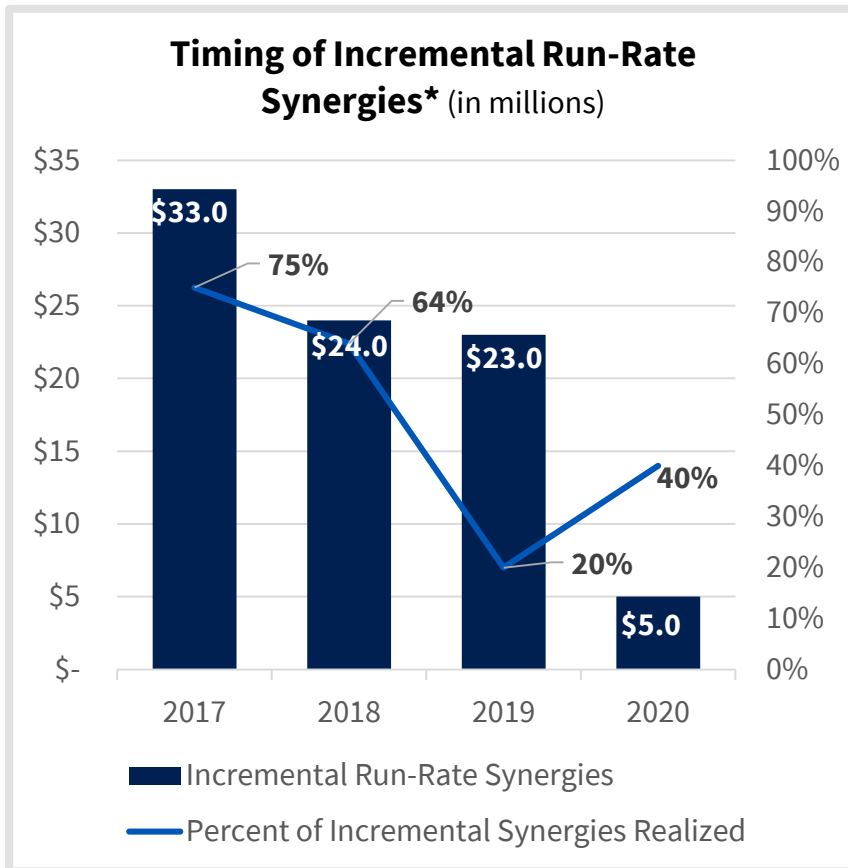
Questions & Answers

Appendix Materials



Realized Versus Run-Rate Expense Synergies

2019 realized synergies expected to be lower due to timing of C1 migration in October 2019



*Actual through 2018; reflects target as of May 3, 2019, for 2019 and 2020.

Targeted Run-Rate Synergies Realization

(in millions)	Targeted Run-Rate Synergies	Increase in Run Rate Each Year	% of Incremental Run-Rate Synergies Realized/Targeted	Actual/Targeted Realized Synergies	Carryover from Prior Year Run-Rate	Total Synergies Realized/Targeted by Year	Cumulative Synergies Realized/Targeted
2017 Actual	\$33.0	\$33.0	75%	\$24.6	\$0.0	\$24.6	\$24.6
2018 Actual	57.0	24.0	64%	\$15.4	8.4	23.8	\$48.4
2019 Target*	80.0	23.0	20%	\$4.6	8.6	13.2	\$61.6
2020 Target*	85.0	5.0	40%	\$2.0	18.4	20.4	\$82.0
2021 Target*					3.0	3.0	\$85.0
Total		\$85.0		\$46.6	\$38.4	\$85.0	

*Reflects target as of May 3, 2019

1Q19 Financial Overview

Adjusted Financial Results¹ (\$ in millions, except per share)	1Q19	1Q18	% Chg
Net Revenue ²	\$280.5	\$328.5	-15%
Adjusted Operating Expenses ¹	94.1	109.9	-14%
Adjusted Operating Income ¹	\$186.4	\$218.6	-15%
<i>Adjusted Operating Margin¹</i>	66.5%	66.5%	--
Adjusted Net Income Allocated to Common Stockholders ¹	\$124.5	\$155.2	-20%
Adjusted Diluted EPS ¹	\$ 1.11	\$ 1.38	-20%
Adjusted EBITDA ¹	\$186.6	\$231.2	-19%
<i>Adjusted EBITDA Margin¹</i>	66.5%	70.4%	-390 bps

¹Adjusted to reflect the impact of certain items. See Appendix for “Non-GAAP Information.”

²Net revenue referenced in this presentation represents revenue less cost of revenue.

Net Revenue Growth Supported by Both Transaction and Non-Transaction Revenue

1Q19 net transaction fees down 24%; non-transaction net revenue up 2%

Net Revenue (in millions)	1Q19	1Q18	% Chg
Net transaction fees ¹	\$177.5	\$233.9	-24%
Access and capacity fees	54.4	50.6	8%
Market data fees	51.6	54.2	-5%
Regulatory fees	10.5	7.5	40%
Royalty fees	(21.0)	(27.2)	-23%
Other revenue	7.5	9.5	-21%
Total	\$280.5	\$328.5	-15%

¹See Appendix for “Non-GAAP Information.”

Supplemental Segment Information

1Q19 Supplemental Net Revenue by Segment (in millions)	Options	U.S. Equities	Futures	European Equities	Global FX	Total¹
Net transaction fees ²	\$104.8	\$22.5	\$24.6	\$13.6	\$12.0	\$177.5
Access and capacity fees	\$26.0	\$19.0	\$3.7	\$4.0	\$1.7	\$54.4
Market data fees	\$13.7	\$32.9	\$1.7	\$3.2	\$0.1	\$51.6

1Q18 Supplemental Net Revenue by Segment (in millions)	Options	U.S. Equities	Futures	European Equities	Global FX	Total¹
Net transaction fees ²	\$144.7	\$21.5	\$38.8	\$15.9	\$13.0	\$233.9
Access and capacity fees	\$23.6	\$18.1	\$3.7	\$3.7	\$1.5	\$50.6
Market data fees	\$10.8	\$38.5	\$1.4	\$3.4	\$0.1	\$54.2

¹Totals may not foot due to rounding.

²A full reconciliation of our non-GAAP results to our GAAP results is included in the following tables. See "Non-GAAP Information" in the accompanying financial tables.

Non-GAAP Information



Non-GAAP Information

In addition to disclosing results determined in accordance with GAAP, Cboe Global Markets has disclosed certain non-GAAP measures of operating performance. These measures are not in accordance with, or a substitute for GAAP, and may be different from or inconsistent with non-GAAP financial measures used by other companies. The non-GAAP measures provided in this presentation include net transaction fees, adjusted operating expenses, adjusted operating income, adjusted operating margin, adjusted net income allocated to common stockholders and adjusted diluted earnings per share, adjusted tax rate, adjusted cash and financial investments, EBITDA, EBITDA margin, adjusted EBITDA and adjusted EBITDA margin.

Management believes that the non-GAAP financial measures presented in this presentation, including adjusted operating income and adjusted operating expenses, provide additional and comparative information to assess trends in our core operations and a means to evaluate period-to-period comparisons. Non-GAAP financial measures disclosed by management are provided as additional information to investors in order to provide them with an alternative method for assessing our financial condition and operating results.

Amortization expense of acquired intangible assets: We amortize intangible assets acquired in connection with various acquisitions. Amortization of intangible assets is inconsistent in amount and frequency and is significantly affected by the timing and size of our acquisitions. As such, if intangible asset amortization is included in performance measures, it is more difficult to assess the day-to-day operating performance of the businesses, the relative operating performance of the businesses between periods and the earnings power of the company. Therefore, we believe performance measures excluding intangible asset amortization expense provide investors with an additional basis for comparison across accounting periods.

Acquisition-related expenses: From time to time, we have pursued small bolt-on acquisitions and in 2017 completed a larger transformative acquisition, which have resulted in expenses which would not otherwise have been incurred in the normal course of the company's business operations. These expenses include integration costs, as well as legal, due diligence and other third party transaction costs. The frequency and the amount of such expenses vary significantly based on the size, timing and complexity of the transaction. Accordingly, we exclude these costs for purposes of calculating non-GAAP measures which provide an additional analysis of Cboe's ongoing operating performance or comparisons in Cboe's performance between periods.

The tables below show the reconciliation of each financial measure from GAAP to non-GAAP. The non-GAAP financial measures exclude the impact of those items detailed below and are referred to as adjusted financial measures.

Non-GAAP Information

Reconciliation of Net Transaction Fees by Segment						
For the Three Months Ended March 31, 2019						
(in millions)	Options	U.S. Equities	Futures	European Equities	Global FX	Total
Transaction fees	\$ 173.8	\$ 198.9	\$ 24.6	\$ 21.1	\$ 12.0	\$ 430.4
Liquidity payments	(65.5)	(170.7)		(7.5)	-	(243.7)
Routing and clearing	(3.5)	(5.7)	-	-	-	(9.2)
Net transaction fees	<u>\$ 104.8</u>	<u>\$ 22.5</u>	<u>\$ 24.6</u>	<u>\$ 13.6</u>	<u>\$ 12.0</u>	<u>\$ 177.5</u>
For the Three Months Ended March 31, 2018						
(in millions)	Options	U.S. Equities	Futures	European Equities	Global FX	Total
Transaction fees	\$ 235.8	\$ 233.8	\$ 38.8	\$ 25.7	\$ 13.0	\$ 547.1
Liquidity payments	(87.6)	(205.5)	-	(9.8)	-	(302.9)
Routing and clearing	(3.5)	(6.8)	-	-	-	(10.3)
Net transaction fees	<u>\$ 144.7</u>	<u>\$ 21.5</u>	<u>\$ 38.8</u>	<u>\$ 15.9</u>	<u>\$ 13.0</u>	<u>\$ 233.9</u>

Non-GAAP Information

(in millions, except per share amounts)	1Q18	2Q18	3Q18	4Q18	2018	1Q19
Reconciliation of Net Income Allocated to Common Stockholders to Non-GAAP						
Net income allocated to common stockholders	\$ 117.3	\$ 82.4	\$ 85.0	\$ 137.3	\$ 422.1	\$ 94.6
Acquisition-related expenses (1)	8.8	8.6	5.9	6.7	30.0	2.3
Amortization of acquired intangible assets (2)	42.1	39.7	39.4	39.4	160.6	37.6
Change in contingent consideration	-	-	-	0.1	0.1	-
Total Non-GAAP operating expense adjustments	50.9	48.3	45.3	46.2	190.7	39.9
Interest and other borrowing costs	-	-	-	-	-	-
Provision for uncollectable convertible notes receivable	-	-	-	-	-	-
Change in redemption value of noncontrolling interest	0.3	0.3	0.3	0.4	1.3	0.2
Total Non-GAAP adjustments - pretax	51.2	48.6	45.6	46.6	192.0	40.1
Income tax expense related to the items above	(13.0)	(12.6)	(12.1)	(11.7)	(49.4)	(10.0)
Tax provision re-measurement	-	-	-	(0.4)	(0.4)	-
Net income allocated to participating securities - effect on reconciling items	(0.3)	(0.2)	(0.2)	(0.2)	(0.9)	(0.2)
Adjusted net income allocated to common stockholders	\$ 155.2	\$ 118.2	\$ 118.3	\$ 171.6	\$ 563.4	\$ 124.5
Reconciliation of Diluted EPS to Non-GAAP						
Diluted earnings per common share	\$ 1.04	\$ 0.73	\$ 0.76	\$ 1.23	\$ 3.76	\$ 0.85
Per share impact of non-GAAP adjustments noted above	0.34	0.32	0.30	0.31	1.26	0.26
Adjusted diluted earnings per common share	\$ 1.38	\$ 1.05	\$ 1.06	\$ 1.54	\$ 5.02	\$ 1.11
Reconciliation of Operating Margin to Non-GAAP						
Revenue less cost of revenue	\$ 328.5	\$ 283.5	\$ 270.5	\$ 334.4	\$ 1,216.9	\$ 280.5
Non-GAAP adjustments noted above	-	-	-	-	-	-
Adjusted revenue less cost of revenue	\$ 328.5	\$ 283.5	\$ 270.5	\$ 334.4	\$ 1,216.9	\$ 280.5
Operating expenses	\$ 160.8	\$ 154.4	\$ 144.4	\$ 158.0	\$ 617.5	\$ 134.0
Non-GAAP expense adjustments noted above	(50.9)	(48.3)	(45.3)	(46.2)	(190.7)	(39.9)
Adjusted operating expenses	\$ 109.9	\$ 106.1	\$ 99.1	\$ 111.8	\$ 426.8	\$ 94.1
Operating income	\$ 167.7	\$ 129.1	\$ 126.1	\$ 176.4	\$ 599.4	\$ 146.5
Non-GAAP expense adjustments noted above	50.9	48.3	45.3	46.2	190.7	39.9
Adjusted operating income	\$ 218.6	\$ 177.4	\$ 171.4	\$ 222.6	\$ 790.1	\$ 186.4
Adjusted operating margin (3)	66.5%	62.6%	63.4%	66.6%	64.9%	66.5%
Reconciliation of Income Tax Rate to Non-GAAP						
Income before income taxes	\$ 159.4	\$ 119.8	\$ 116.3	\$ 175.6	\$ 571.2	\$ 127.8
Non-GAAP adjustments noted above	51.2	48.6	45.6	46.6	192.0	40.1
Adjusted income before income taxes	\$ 210.6	\$ 168.4	\$ 161.9	\$ 222.2	\$ 763.2	\$ 167.9
Income tax (benefit) expense	\$ 41.3	\$ 36.8	\$ 30.6	\$ 37.3	\$ 146.0	\$ 32.6
Non-GAAP adjustments noted above	13.0	12.6	12.1	11.7	49.4	10.0
Adjusted income tax (benefit) expense	\$ 54.3	\$ 49.4	\$ 42.7	\$ 49.0	\$ 195.4	\$ 42.6
Adjusted income tax rate	25.8%	29.4%	26.4%	22.1%	25.6%	25.4%

(1) This amount includes professional fees and outside services, severance, and other costs related to the company's acquisition of Bats.

(2) This amount represents the amortization of acquired intangible assets for Bats.

(3) Adjusted operating margin represents adjusted operating income divided by adjusted revenue less cost of revenue.

Non-GAAP Information

EBITDA Reconciliations

EBITDA (earnings before interest, income taxes, depreciation and amortization) is a widely used non-GAAP financial measure of operating performance. EBITDA margin represents EBITDA divided by revenues less cost of revenues (net revenue). It is presented as supplemental information that the company believes is useful to investors to evaluate its results because it excludes certain items that are not directly related to the company's core operating performance. EBITDA is calculated by adding back to net income interest expense, income tax expense, depreciation and amortization. EBITDA should not be considered as substitutes either for net income, as an indicator of the company's operating performance, or for cash flow, as a measure of the company's liquidity. In addition, because EBITDA may not be calculated identically by all companies, the presentation here may not be comparable to other similarly titled measures of other companies. EBITDA margin represents EBITDA divided by net revenue.

Reconciliation of Net Income Allocated to Common Stockholders to EBITDA and Adjusted EBITDA						
(in millions, except per share amounts)	1Q18	2Q18	3Q18	4Q18	2018	1Q19
Net income allocated to common stockholders	\$ 117.3	\$ 82.4	\$ 85.0	\$ 137.3	\$ 422.1	\$ 94.6
Interest	9.6	9.3	9.6	9.7	38.2	9.9
Income tax provision	41.3	36.8	30.6	37.3	146.0	32.6
Depreciation and amortization	54.2	50.4	50.3	49.1	204.0	47.2
EBITDA	\$ 222.4	\$ 178.9	\$ 175.5	\$ 233.4	\$ 810.3	\$ 184.3
EBITDA Margin¹	67.7%	63.1%	64.9%	69.8%	66.6%	65.7%
Non-GAAP adjustments not included in above line items						
Acquisition-related expenses	8.8	8.6	5.9	6.7	30.0	2.3
Other	-	-	-	0.1	0.1	-
Adjusted EBITDA	\$ 231.2	\$ 187.5	\$ 181.4	\$ 240.2	\$ 840.4	\$ 186.6
Adjusted EBITDA Margin¹	70.4%	66.1%	67.1%	71.8%	69.1%	66.5%

¹EBITDA margin represents the respective EBITDA divided by the respective net revenue as shown in the non-GAAP reconciliations provided.

Non-GAAP Information

Adjusted Debt to EBITDA - Trailing Twelve Months¹					
(in millions)	2Q18	3Q18	4Q18	1Q19	LTM
Net income allocated to common stockholders	\$ 82.4	\$ 85.0	\$ 137.3	\$ 94.6	\$ 399.3
Interest expense, net	9.3	9.6	9.7	9.9	38.5
Income tax provision	36.8	30.6	37.3	32.6	137.3
Depreciation and amortization	50.4	50.3	49.1	47.2	197.0
EBITDA	\$ 178.9	\$ 175.5	\$ 233.4	\$ 184.3	\$ 772.1
Non-GAAP adjustments not included in above line items:					
Acquisition-related expenses	8.6	5.9	6.7	2.3	23.5
Other	-	-	0.1	-	0.1
Adjusted EBITDA	\$ 187.5	\$ 181.4	\$ 240.2	\$ 186.6	\$ 795.7
Debt at end of period					\$ 1,225.0
Debt to EBITDA					1.5x

¹A full reconciliation of our non-GAAP to our GAAP results are available in this section.

Adjusted Cash

Adjusted cash is a non-GAAP measure and represents cash and cash equivalents plus financial investments minus cash collected for Section 31 fees, which will need to be remitted in the near term. We have presented adjusted cash because we consider it an important supplemental measure of our liquidity and believe that it is frequently used by analysts, investors and other interested parties in the evaluation of companies.

Adjusted Cash (in millions)	As of 3/31/18	As of 6/30/18	As of 9/30/18	As of 12/31/18	As of 3/31/19
Cash and cash equivalents	\$ 166.3	\$ 140.0	\$ 88.5	\$ 275.1	\$ 346.2
Financial investments	64.0	131.8	49.2	35.7	30.2
Cash collected for Section 31 fees	(64.0)	(155.8)	-	(53.1)	(28.6)
Adjusted Cash	\$ 166.3	\$ 116.0	\$ 137.7	\$ 257.7	\$ 347.8



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